product data carboline® **Pyrocrete® 241**
Application Instructions

application instructions *fireproofing systems*

Substrates & Surface Preparation

General	Before applying Pyrocrete 241, the substrate coating must be free of all oil, grease, condensation, or other contamination.
Steel	Steel preparation before priming should be done in accordance with the recommended primer's Product Data Sheet.
Carbon Steel	Carbozinc® 11 Carboguard® 888 Carbozinc® 11 VOC Carboguard® 893 Rustbond Penetrating Sealer®
Galvanized Steel	Normally not required, but may be required under corrosive conditions. Use Carboline Rustbond Penetrating Sealer.
Non-Ferrous Metals	Aluminum, copper, etc. shall be primed with one coat of Carboline Rustbond Penetrating Sealer.
Concrete	The primer recommended is Carboguard® 1340.

Lathing & Attachments (Where required)

3.4 lbs./yd^2 (1.85 kg/m^2) galvanized metal lath, may be pre-bent and tie-wired into place for appropriate design. Optionally, beam furring clips or electrically welded, pneumatic or self-tapping screws or studs, may be used.

A. **Contour Design:** 3.4 galvanized metal lath wrapped around the flange edges toward the web approximately 1½" (3.8 cm). Contour columns allow the use of chicken wire with beam furring clips as an alternate to the 3.4 metal lath. Please refer to design details.
For contour applications on structural members with web span greater than 16" (41 cm) or flange widths greater than 12" (31 cm) refer to the U.L. Fire Resistance Directory under "Coating Materials" section.

B. **Boxed Design:** 3.4 galvanized metal lath wrapped around member spanning the web, overlapped 1" (2.5 cm) and tie-wired on the flange face 12" (31 cm) on center. For large webbed members, additional support for lath may be needed for ease of installation. Optional use of plastic-nose corner beads may be used for better thickness control and aesthetics.

C. **Tower Skirts and Flat Surfaces:** Require that 3.4 galvanized metal lath be anchored on 12" to 24" (31-61 cm) centers depending upon requirements. The lath should overlap and be tie-wired. On tower skirts only, PVC coated mesh can be used in lieu of 3.4 galvanized lath. Mesh shall be 2" x 2" 20 gauge wire coated with PVC as furnished by Carboline.

When ram set or welding is prohibited; a pneumatic fastener may be used.

On very large areas, control joints are made by scoring halfway through the thickness of Pyrocrete 241. This is achieved by using the trowel blade edge or an appropriate scoring tool. A preferred option would be the use of plastic nosed corner beads. Spacing should be on 10' (3 m) centers, both horizontally and vertically. Please refer to design details.

Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.
General Guidelines:

Mixer Use a heavy-duty mortar mixer with rubber tipped blades that will scrape the sides and bottom of the mixer. A 50 lb. (22.7 kg.) bag of Pyrocrete 241 typically requires a mixer volume of 8 ft.^{3} (.23 m^3) minimum.

Pumps

Mfg.	Model	Type	Size
Essick	FM9, FM5E	Rotor Stator	2L4
Mayco	PF3	Dual Piston	
Airtech	Swinger	Piston	N/A
Thomsen	PTV 700	Dual Piston	N/A
Putzmeister	S5EV	Rotor Stator	2L6
Sunspray	220	Rotor Stator	2L4
Sunspray	EZ88	Rotor Stator	Super 2L6

Trowels Standard plasterers' hawk and trowel may be used. A rubber float may also aid in finishing.

Compressor Be certain that the air supply is a minimum 22 cfm at 100 psi (6.9 kPa) and higher when distances longer than 75' (22 m) are required.

Material Line Minimum 1" (2.5 cm) I.D. hose with 300 psi minimum bursting pressure. For lengths over 50" (15 m) use 1½" to 3" (3.8 to 7.6 cm) I.D. hose. Do not reduce hose diameter by more than ¼' (7mm) per 25' (7.5 m) unless a tapered conical reducer equipped with swivel fitting is used. A 10' (3m) length of ¾" (1.9 cm) I.D. hose may be added at the gun for use as a whip.

Air line Use ½" (1.3 cm) I.D. line, with a minimum bursting pressure of 100 psi (6.9 kPa).

Spray Guns

Mfg.	Model	Fluid Tip	Air Cap
Binks	7E2	47 or 49	3/8" or ½"
Graco	204000	167331	160658
SpeeFlo	701	3/8" – ½" (9 mm)	3/8" – ½" (9 mm)
Plasterers	NA	3/8" – ½" (9 mm)	N/A
Air Tech	Internal Mix	3/8" – ½"	N/A

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Pyrocrete® 241

Mixing & Thinning

Mixing — Add 4¼ ± ¾ gallons (17 ± 3 liters) of clean, potable water to a mortar mixer with rubber tipped blades. With mixer running slowly, add powder and mix for 5 minutes minimum (10 minutes maximum) until a homogeneous mortar-like consistency is achieved. Total water must not exceed 5¼ gallons (20 liters) per 50 lb. (22.7 kg) bag. In cool weather, warm water may be used to enhance application. In hot weather, cool/cold water may be used.

Pot Life — 2 hours at 70°F (21°C) and less at higher temperatures. Pot life ends when the material thickens and becomes unusable.

Density

Wet density measurements are critical to obtaining correct dry densities. Mixer wet density should be 74-80 lbs/ft^3 (1.1 – 1.2 g/cm^3). To check wet densities, fill a Dixie cup (or other suitable container of known volume in ounces) with mixed material. Screed the excess until even with the rim of the container and weigh it on a gram scale. Multiply the weight (in grams) by a conversion factor based on the size of the container. (Conversion factor is calculated by taking 2.107 and dividing by the ounces of the cup used). This will yield density in lbs/ft^3.

Cup Used	Conversion Factor	Cup Used	Conversion Factor
3 oz.	.702	7 oz.	.301
4 oz.	.527	8 oz.	.263
5 oz.	.421	12 oz.	.175
6 oz.	.351	16 oz.	.132

Application Procedures

Pyrocrete 241 may be applied by spray and/or trowel. Film build will depend on application method, weather conditions and equipment used. For application overhead, a scratch coat of up to ½" (1.3 cm) is recommended to key into the lath. Allow to set for approximately 1 to 2 hours at 70°F (21°C) before applying the subsequent coats. It is recommended that the total required thickness be applied within a 24 hour period. If this is not possible, the preceding coats should be left as sprayed or scored after the initial 24 hour period, Pyrocrete 241 should then be dampened with water before application of additional coats.

- Maximum time to achieve the full thickness is 3 days at 70°F (21°) and 50% relative humidity. This would be less at higher temperatures.
- All additional coats are applied monolithically to the entire perimeter of the member.
- At no time shall Pyrocrete 241 be applied at a thickness less than ¼" (7 mm) or "skim" coated.

Application Conditions

	Surface or Ambient Temp.		Relative Humidity	
	Minimum	Maximum	Min.	Max.
Interior or Exterior	40°F (4°C)	100°F (38°C)	0%	95%

Finishing

If a smooth finish is required, this may be done by trowel, roller or brush typically within 1 to 2 hours after final application of Pyrocrete 241.

Protection of Adjacent Surfaces

Finished surfaces shall be protected from damage and overspray. Encapsulation of aluminum electrical conduits is not recommended.

Curing

Fresh Pyrocrete 241 must be protected from rain or running water for 24 hours at 70°F (21°C). In low humidity, high temperature, direct sun or wind, the Pyrocrete surface should be kept damp for at least 12 hours by applying a water mist or wrapping in plastic sheets to reduce rapid water loss.

Caution: Do not start work if ambient temperatures are expected to drop below 35°F (2°C) for 24 hours after application.

Topcoating

Seal Coat – In corrosive environments, use an appropriate topcoat. If topcoating is required, apply Carboguard 1340 as a seal coat. Carboguard 1340 may be applied after 24 hours of final application of Pyrocrete 241. Consult the Carboguard 1340 Product Data Sheet for minimum and maximum cure times.

Top Coat – Surface hardness should be a minimum Shore D 40 as measured with a Durometer prior to application of the topcoat. Normally, this minimum dry time is 10 days at 70°F (21°C) and 40 days at 40°F (4°C), for thickness of 1" (2.5 cm) or less.

Caulking – For exterior installations a compatible caulk should be applied at all termination joints between Pyrocrete 241 and the substrate. Contact Carboline Technical Service for full information.

Cleanup & Safety

Cleanup — Pump, mixer and hose should be cleaned with clean, potable water at least once every 4 hours at 70°F (21°C), and more often at higher temperatures. Sponges should be run through the hoses to remove residual material. Wet Pyrocrete 241 overspray must be cleaned up with soapy or clean, potable water. Cured overspray may require chipping and/or scraping to remove.

Safety — 1. Do not breathe dust. Pyrocrete 241 is caustic and will irritate mucous membranes. Use OSHA approved dust mask while mixing.
2. For eye contact, flush with copious amount of water in accordance with OSHA instructions. Goggles or safety glasses are recommended.
3. Wash skin with clean water to prevent irritation.

Caution — Encapsulation of aluminum electrical conduit is not recommended.

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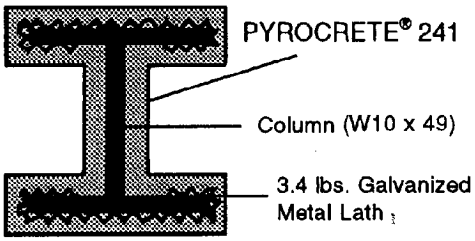
An RPM Company

August 2004 replaces March 2003

COLUMN ASSEMBLIES
UL 1709 RAPID TEMPERATURE RISE RATINGS
PYROCRETE® 241

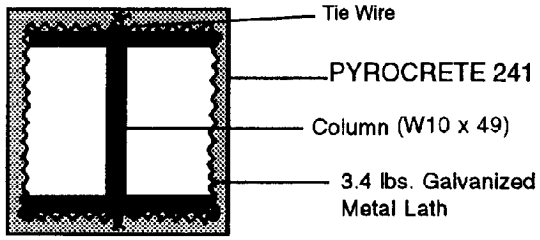
The temperature of the fire in which rapid temperature rise ratings are derived, reaches 2000°F within five minutes of exposure. The fire temperature is maintained at this level throughout the rating period. This fire exposure was developed to provide a means to evaluate fire resistive assemblies intended for use in areas which may develop fire temperatures at a faster rate than assemblies tested under Standard UL 263. Systems classified in this category are also investigated to determine their ability to retain a degree of fire resistance when exposed to various environments. Materials are subjected to standardized environmental tests which include simulated aging, ultraviolet light, salt spray exposure, the cycling effects of water freezing temperatures / dryness and exposure to air containing carbon dioxide and sulfur dioxide.

U.L. DESIGN XR-701



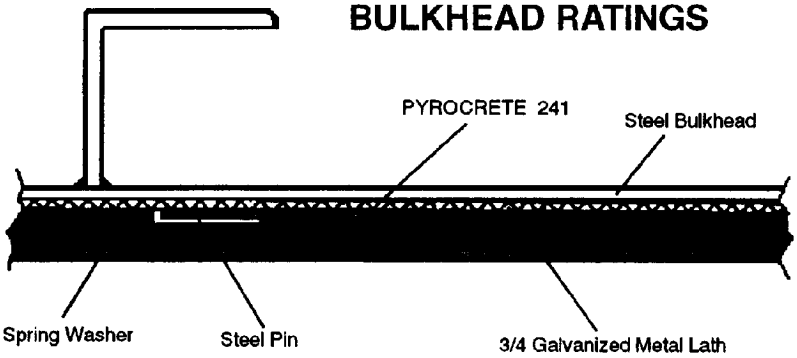
Rating	Thickness	
3/4	1/2 in.	(13mm)
1	11/16 in.	(17mm)
1-1/2	15/16 in.	(24mm)
2	1-1/8 in.	(29mm)
3	1-3/8 in.	(35mm)
4	1-9/16 in.	(40mm)

U.L. DESIGN XR-702



Rating	Thickness	
3/4	5/8	(16mm)
1	11/16 in.	(17mm)
1-1/2	7/8 in.	(22mm)
2	1 in.	(25mm)
2-1/2	1-1/8 in.	(29mm)
3	1-1/4 in.	(32mm)
4	1-1/2 in.	(38mm)

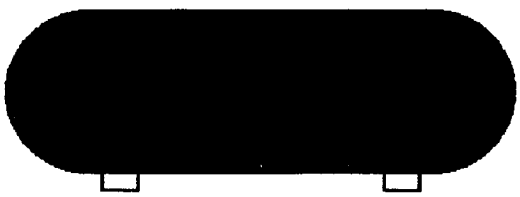
BULKHEAD RATINGS

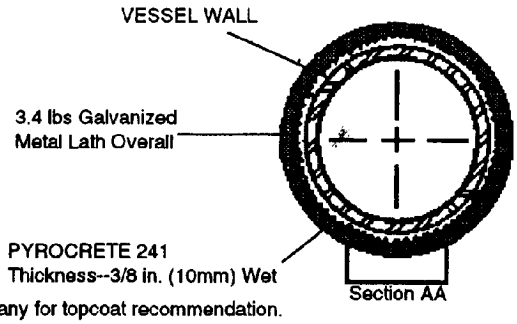


RATING	FIRTO		DET NORSKE VERITAS		LLOYD'S REGISTER	
A-30	16mm	(5/8 in.)	14mm	(9/16 in.)	16mm	(5/18 in.)
A-60	25mm	(1 in.)	20mm	(13/16 in.)	25mm	(1 in.)
H-30	15mm	(9/16 in.)	15mm	(9/16 in.)	15mm	(9/16 in.)
H-60	23mm	(15/16 in.)	21mm	(13/16 in.)	23mm	(15/16 in.)
H-120	33mm	(1-1/4 in.)	33mm	(1-1/4 in.)	33mm	(1-1/4 in.)

LPG TANKS fire protected coatings

F.M. APPROVED





NOTE: Consult Carboline Company for topcoat recommendation.

Chevron Engineering Standards

Surface Prep:				
Epoxy Mastic | Polyamide Epoxy (High Build) | Aliphatic Polyurethane				**3.5**
SSPC-SP3 Power-brush finish.		**Touch-up:** Use this system.		
Anchor Pattern:	1.5 - 3.0 mils			
Total DFT:	12.0 mils (min)			
Coat, Generic Classification, DFT	**Manufacturer**	**Product**	**VOC**	**Temp Limit**
PRIMER **Epoxy Mastic - Surface Tolerant** **5.0 - 7.0 mils DFT**	Ameron	Amerlock 400	§120	
	Carboline	Carboguard 890	§214	
	Devoe	Devran 224HS	§212	
	Hempel Coatings (USA), Inc.	Hempadur 45880	§215	
	International	Interseal 670 HS	§240	
	Jotun Paints	Jotamastic 87	§196	
	PPG Industries	97-145	§128	
	Sherwin Williams	Dura-Plate 235 B67-235 Series B67/V235	§272	
	Sigma Coatings	SigmaCover 630	§232	
	Available in colors. May use System 3.5.1 Aluminum-Filled Epoxy Mastic (Surface-Tolerant Primer) for better performance if aluminum color is acceptable.			
TIECOAT **Epoxy - Polyamide** **High Build** **5.0 - 7.0 mils DFT**	Ameron	Amercoat 385	§276	
	Carboline	Carboguard 890	§214	
	Devoe	Devran 224HS	§212	
	Hempel Coatings (USA), Inc.	Hempadur 4520	400	
	Hempel Coatings (USA), Inc.	Hempadur 45880	§215	
	International	Interseal 670 HS	§240	
	Jotun Paints	Penguard HB	380	
	PPG Industries	Aquapon 97-130	373	
	Sherwin Williams	Macropoxy 646 B58-600 Series/B68V600	§235	
	Sigma Coatings	SigmaCover 456	347	
	Ameron	Amercoat 450 Series	§335	
	Carboline	Carbothane 134 HG	§288	

TOPCOAT **Polyurethane - Aliphatic** **2.0 - 3.0 mils DFT**	Devoe	Devthane 379	§311
	Hempel Coatings (USA), Inc.	5595U	§312
	Hempel Coatings (USA), Inc.	Hempathane 5595	§332
	International	Interthane 990	395
	International	Interthane 990HS	§332
	Jotun Paints	Hardtop HB	§256
	PPG Industries	95-812	§241
	Sherwin Williams	Hi-Solids Polyurethane B65-300 SeriesB65/V30	§289
	Sigma Coatings	Sigmadur 500 US	§320
	Respirators are strongly recommended when applying polyurethane.		
Vendors of mechanical equipment normally have their own standard coatings and find it economically impractical to change to purchaser-specified systems such as this one. Chevron's specified system must be applied unless the vendor obtains written approval from Chevron to substitute another. The alternative is to accept the vendor's standard primer and then apply Coating System 3.7 (Manufacturer's Standard/Universal Primer/Polyamide Epoxy (High Build)/Aliphatic Polyurethane).			
Last Update:	5/31/2006		

§ VOC at or below 340 g/l is the anticipated regulatory limit. Checklocal standards for current VOC limits. Consult manufacturer'sproduct data sheets for specific details about applying any coating.

Last Update: 1 December, 2005

Content Owner: Paul Hunter
Technical Contact: Ken Wasilchin

Compa

product data carboline® **Pyrocrete® 241**

fireproofing systems

Selection & Specification Data

Generic Type Cementitious inorganic fireproofing formulation.

Description Single powder component mixed with clean, potable water before application. Recommended uses for the fire protection of structural steel, bulkheads, and upgrading the fire resistance of existing concrete. Recommended areas of application are refineries, petrochemical, pharmaceutical facilities, pulp and paper mills, offshore platforms, nuclear and conventional power plants, factories, warehouses, institutional and biomedical facilities.

Features

- Easily applied by spray or trowel
- Lightweight – one-third the weight of concrete for equal fire protection
- Excellent physical properties – hard, durable
- Nonflammable – during or after application
- Asbestos-free – complies with EPA and OSHA regulations
- Chloride and sulfide free – no special priming required
- Non-friable – high impact strength
- Single package – mixed with clean, potable water at the job site
- Investigated for exterior use by Underwriters Laboratories, Inc
- Quality Manufactured – under strict Carboline quality standards
- UL factory inspection service
- Unique crack-free formulation

Finish If a smooth finish is required, this may be done by trowel, roller or brush typically within 1 to 2 hours after final application of Pyrocrete 241.

Primers Pyrocrete 241 neither promotes nor prevents corrosion. The fireproofing should not be considered as part of the corrosion protection system. For applications where primers are required, use an appropriate alkaline resistant primer. U.L. Primer requirements for contour applications where primers are recommended, Pyrocrete 241 must meet minimum U.L. bond strength criteria. Contact the Carboline Fireproofing Division for other approved primers.

Selection & Specification Data (cont.)

Topcoats Generally not required. In severely corrosive atmospheres, consult Carboline Technical Service for selection of the coating most suitable for the operating environment.

Dry Film Thickness Recommended thickness depends on desired rating and assembly to be fireproofed. See attached design details.

Temperature Resistance Not recommended for use as a refractory cement or where operating temperatures exceed 200°F (93°C).

Physical Data (Typical Values)

Color	Non-Uniform	Speckled Gray
Density (Average)	ASTM E 605(1)	55 lbs/ft^3
Durometer Hardness (Shore D)	ASTM D 2240	55
Compressive Strength	ASTM E 761	817 psi
Coefficient of Thermal Expansion		4.5 X10^{-6} (inch / inch °F)
Bond Strength Unprimed Steel	ASTM E 736	>1146 psf
Bond Impact	ASTM E 760	Pass
Impact Resistance	ASTM D 2794	Indents at 20 foot pounds
Deflection	ASTM E 759	Pass
Average Flexural Strength	ASTM D 790	502 psi
Flame Spread	ASTM E 84	0
Smoke Development	ASTM E 84	0
Maximum Strain	ASTM D 790	0.0015 in/in
Corrosion	ASTM E 937	0.00 gm/mm^2
Insulation "K" Factor	ASTM C 177	0.87 (BTU in / hr ft^2-°F at 75°F)
Specific Heat		0.36 BTU/lb°F
Shrinkage		<0.5%
Coverage 50 lb. bag (2)		14.3 Bd.Ft.
Shelf Life		Two years

(1) Air dry at ambient conditions until constant weight. Do not force dry. Use ASTM E 605 Positive Bead Displacement.

(2) Material losses during mixing and application will vary and must be taken into consideration when estimating job requirements.

Test reports and additional data available upon written request.

July 2004 replaces March 2003

Pyrocrete® 241

Approvals

Pyrocrete 241 has been tested by Underwriters Laboratories, Inc. and is classified for exterior or interior use. It is listed under the following designs:

ASTM E119 (U.L. 263, NFPA 251)

- Columns - X732,X733,X735,X736,X743,X744,Y707,Y708
- Roof Assembly – P734, P735, P736, P737, P738, P739, P926, P927, P928, P929, G706, G707, G708, J713, J714, J715, J716
- Beams – N715, N716, N717, N718, N771, N772, N773, N774, N775, S706, S713, S731, S732, S733
- Floor Ceiling Assembly – D744, D767, D768, D769, D770, D771, D772, D773, D774, D775, D776, D777, D927, D928,
- Walls – U704

U.L. 1709

- Rapid temperature rise which simulates a hydrocarbon fire exposure
- Columns – XR701,XR702

LPG VESSELS

Tested and listed by Factory Mutual for LP vessels at 3/8" (10mm) thickness from face of metal lath for 2 hour rating, including hose stream endurance test.

BULKHEAD RATINGS

Tested by Fire Insurers' Research and Testing Organization (FIRTO) London, England for standard and hydrocarbon exposure. Approved by the following agencies:

Lloyd's Register of Shipping – Certification

- A-30 SVG/F94/095
- A-60 SVG/F94/096
- H-30 SAS/F96/670
- H-60 SVG/F94/097
- H-120 SVG/F94/098
- Jet Fire Protection - SAS F020089
- Three Bar Overblast Test

CODE REVIEWS

NYC MEA

- 172-80-M (Columns)
- 173-80-M (Columns W14x233)
- 174-80-M (Beams)

City of San Francisco

- 164 C57.7A

Los Angeles

- RR24763

Packaging, Handling & Storage

Shipping Weight (Approximate)	Bag weight is 50 lbs. (22.7 kg) Truckload = 880 bags 40 palletized bags and pallet is plastic wrapped.
Storage (General)	Material should be kept dry, covered, and off the ground.
Storage Temperature & Humidity	-20°F to 150°F (-29°C to 66°C) 0 to 90% relative humidity
Shelf Life	Min. 24 months

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**

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314/644-1000 314/644-4617 (fax) www.carboline.com

July 2004 replaces March 2003

Material Safety Data Sheet

CHEMTREC Transporation Emergency Phone: 800-424-9300

Pittsburgh Poison Control Center Health Emergency No.: 412-681-6669

•NOTE: The CHEMTREC Transportation Emergency Phone is to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals

Section 1 - Chemical Product / Company Information

Product Name: Pyrocrete 241

Identification Number: 014800000B6

Product Use/Class: Cementitious Inorganic Fireproofing Formulation - FOR INDUSTRIAL USE ONLY

Revision Date: 07/29/2005

Supercedes : 06/10/2005

Preparer: Regulatory, Department

Manufacturer: **Carboline Company**
350 Hanley Industrial Ct.
St. Louis, MO 63144

Section 2 - Composition / Information On Ingredients

Chemical Name	CAS Number	Weight % Less than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA-CEIL
CALCIUM SALTS	65997-15-1	45.0	10 MGM3	N/E	5 MGM3	NE
MICA	012001-26-2	25.0	3 MGM3	N/E	3 MGM3	NE
CALCIUM CARBONATE	001317-65-3	5.0	3 MGM3	N/E	5 MGM3	NE

Section 3 - Hazards Identification

Emergency Overview: May cause irritation to the respiratory tract.

Effects Of Overexposure - Eye Contact: May cause eye irritation.

Effects Of Overexposure - Skin Contact: May cause skin irritation.

Effects Of Overexposure - Inhalation: Overexposure will be irritating to mucous membranes.

Effects Of Overexposure - Ingestion: May be harmful if swallowed.

Effects Of Overexposure - Chronic Hazards: There are no known health effects associated with chronic exposure to this product.

Primary Route(s) Of Entry: Skin Contact, Skin Absorption, Inhalation, Ingestion, Eye Contact

Medical Conditions Prone to Aggravation by Exposure: If you have a condition that could be aggravated by exposure to dust or organic vapors, see a physician prior to use.

Section 4 - First Aid Measures

First Aid - Eye Contact: Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation persists.

First Aid - Skin Contact: Wash skin thoroughly with soap and water.

First Aid - Inhalation: Move person to fresh air. Seek medical attention if irritation persists.

First Aid - Ingestion: If swallowed do not induce vomiting. Seek immediate medical attention.

Section 5 - Fire Fighting Measures

Flash Point, F: None (N/A)

Lower Explosive Limit, %: N.D.
Upper Explosive Limit, %: N.D.

Extinguishing Media:

Unusual Fire And Explosion Hazards: None known.

Special Firefighting Procedures: None. Product will not burn.

Section 6 - Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: Sweep up material and place in appropriate disposal container. Use sweeping compound or other cleaning aids to pick up residues. Wash down area thoroughly with water. Dispose of material in accordance with all federal, state, and local regulations. Use personal protective equipment as necessary.

Section 7 - Handling And Storage

Handling: Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid breathing vapors or spray mist.

Storage: Keep Dry. Keep containers closed when not in use. Store in a cool, dry place with adequate ventillation.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use appropriate equipment to keep nuisance dust cloud levels low.

Respiratory Protection: A properly fitted NIOSH/MSHA approved disposable dust respirator should be used when : high dust levels are encountered; the level of glass fibers in the air exceeds the OSHA permissable limits; or if irritation occurs.

Skin Protection: Sensitive individuals should wear gloves to prevent repeated contact.

Eye Protection: Recommend safety glasses with side shields or chemical goggles to avoid eye contact.

Other protective equipment: Eye wash and safety showers should be readily available.

Hygienic Practices: Handle in accordance with good industrial hygiene and safety practices. These practices

include: avoiding unnecessary exposures to dusts and fibers by using good local exhaust ventilation; removal of the material from the skin and eyes after exposure; removal of material from clothing (Use vacuum equipment to remove fibers and dusts from clothing. Compressed air should never be used. Always wash contaminated work clothes seperately from other laundry and wipe out washer / sink to prevent loose glass fibers from getting on other articles); keep the work area clean of dusts and fibers generated during fabrication (Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques re-suspend dusts and fibers into the air.) and; have access to safety showers and eye wash stations.

Section 9 - Physical And Chemical Properties

Boiling Range:	N.D. -	**Vapor Density:**	N/A
Odor:	Dusty	**Odor Threshold:**	N/D
Appearance:	Grey Speckled Powder	**Evaporation Rate:**	N/A
Solubility in H2O:	N/D		
Freeze Point:	N/D	**Specific Gravity:**	0.120
Vapor Pressure:	N/A	**PH:**	N/D
Physical State:	Solid		

(See section 16 for abbreviation legend)

Section 10 - Stability And Reactivity

Conditions To Avoid: Keep Dry. Material becomes hard and unusable when exposed to water.

Incompatibility: Avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: None are known.

Hazardous Polymerization: Will not occur under normal conditions.

Stability: This product is stable under normal storage conditions.

Section 11 - Toxicological Information

Product LD50: N/D

Product LC50: N/D

Chemical Name	CAS Number	LD50	LC50
CALCIUM SALTS	65997-15-1	NOT AVAILABLE	NOT AVAILABLE
MICA	012001-26-2	NOT AVAILABLE	NOT AVAILABLE
CALCIUM CARBONATE	001317-65-3	NOT AVAILABLE	NOT AVAILABLE

Section 12 - Ecological Information

Ecological Information: No data

Section 13 - Disposal Information

Disposal Information: RCRA HAZARDS CLASS: Non Hazardous Material. Take up material and seal tightly for proper disposal.

Section 14 - Transportation Information

DOT Proper Shipping Name:	Not Regulated	**Packing Group:**	N/A
DOT Technical Name:	N/A	**Hazard Subclass:**	N/A
DOT Hazard Class:	None	**Resp. Guide Page:**	N/A
DOT UN/NA Number:	None		

Section 15 - Regulatory Information

CERCLA - SARA HAZARD CATEGORY

This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

SARA SECTION 313

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

No Section 313 Substances exist in this product

TOXIC SUBSTANCES CONTROL ACT

All components of this product are listed on the TSCA inventory.

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

Chemical Name	CAS Number
SODIUM NITRITE	7632-00-0

U.S. STATE REGULATIONS AS FOLLOWS:

NEW JERSEY RIGHT-TO-KNOW

The following materials are non-hazardous, but are among the top five components in this product.

Chemical Name	CAS Number
HYDRATED ALUMINA	021645-51-2
VERMICULITE	1318-00-9
PERLITE	130885-09-5

PENNSYLVANIA RIGHT-TO-KNOW

The following non-hazardous ingredients are present in the product at greater than 3%.

Chemical Name	CAS Number
HYDRATED ALUMINA	021645-51-2
VERMICULITE	1318-00-9
PERLITE	130885-09-5

CALIFORNIA PROPOSITION 65

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

No California Proposition 65 Carcinogens exist

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards:

No California Proposition 65 Reproductive Toxins exist

INTERNATIONAL REGULATIONS AS FOLLOWS:

CANADIAN WHMIS

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

CANADIAN WHMIS CLASS: No WHMIS Class Assigned

Section 16 - Other Information

HMIS Ratings
Health: 1 **Flammability:** 0 **Reactivity:** 0 **Personal Protection:** X

VOLATILE ORGANIC COMPOUNDS, GR/LTR MIXED (UNTHINNED):

REASON FOR REVISION: Changed to 16 Section Format.

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

The information contained herein is, to the best of our knowledge and belief accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by use of this material. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations